of Dr. Tolmatschow,[1] the ice surrounding the carcase was not that of a lake or river, but evidently formed from snow. It is thus quite likely that the mammoth was quietly browsing on grassland which formed the thin covering of a glacier, and fell into a crevasse which was obscured by the loose earth. On this subject, however, much more information may shortly be expected, when Mr. Ssewastianow publishes an account of the geological researches which he made in the neighbourhood of the Beresowka last summer.

The director of the Zoological Museum of St. Petersburg, Dr. W. Salensky, has not only arranged an admirable and unique exhibition of the newly-acquired mammoth, but has also devoted much time to a scientific investigation of the specimen. The results of his researches will be published by the Imperial Academy of Sciences in a series of memoirs, of which the first, dealing with the skeleton, has just appeared. In this work, he not only describes the parts of the new animal, but also refers to the rich collection of remains of the Siberian mammoth already in the museum under his direction. The first instalment, illustrated with twenty-five fine plates of bones and teeth, is unfortunately written only in the Russian language. We venture to express the hope that, when his work is completed, Dr. Salensky will make it more generally accessible by appending a copious abstract in one of the languages with which most naturalists are familiar.

A. S. W.

THE ETHNOLOGY OF THE MALAY PENINSULA.[2]

THE scientific results of the Skeat expedition of 1899 to Siam and the Malay Peninsula have not yet been published, but a secondary result of that expedition was the return of Mr. Nelson Annandale to the same district in 1901. Sir William Turner suggested to Mr. Annandale that he should obtain measurements of the people of the Siamese Malay States, and the Edinburgh University gave him a grant for that purpose from the Moray Fund. Mr. H. C. Robinson joined Mr. Annandale, and together they made a most successful expedition, the results of which are now beginning to appear with praiseworthy promptitude, a result that is rendered possible through private munificence in Liverpool. The association of this expedition with the University of Liverpool augurs well for the spirit of that young institution, and we hope that it may continue to foster field work in ethnology.

The present fasciculus contains a general account of the appearance and mode of life of the Semang and Sakai tribes of the Malay Peninsula, of the coast people of Trang, and of the Malays of Perak, and detailed studies of the external physical characteristics of these tribes, together with some valuable osteological observations. So far the authors have presented us with a considerable body of data which are at once available to students for comparative purposes, but they reserve comparisons and discussions until the final part. We look forward with great interest to the fulfilment of this promise, as there are several important ethnological problems connected with the region visited that students at home have no means of solving. When the full results of this expedition are before us, as well as those of the Skeat expedition (which we hope will not long be delayed), we shall be in a better position to reconstruct the anthropological history of a very important district, a knowledge of which is necessary before the ethnological problems of the Indonesian Archipelago can be unravelled.

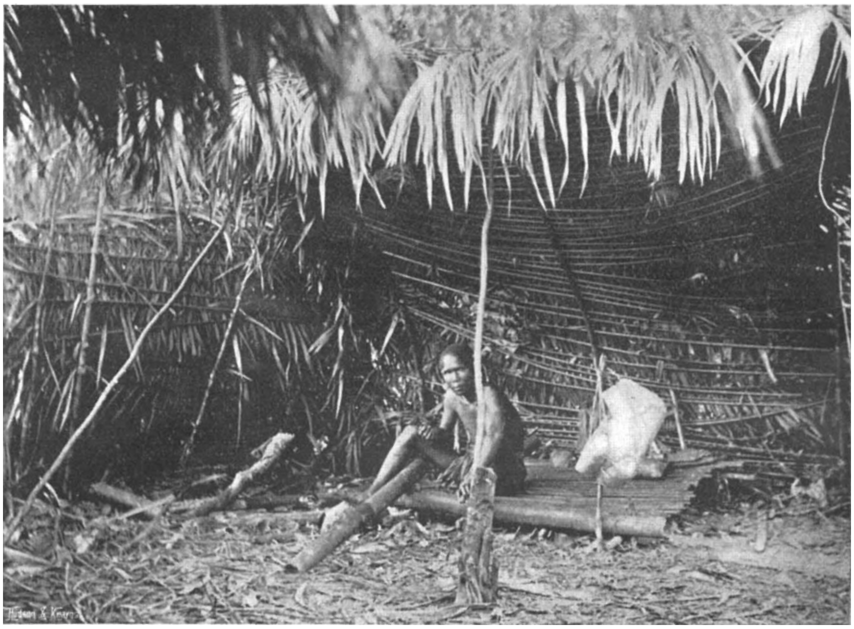

FIG. 1.—Semang (Semán) shelter, with kitchen (occupied by married couple); Grit, Upper Perak.

A general sketch of the main results, from a racial point of view, will be found in the authors' paper in the current number of the *Journal* of the Anthropological Institute, but for the facts on which they are based the student must have recourse to the "Fasciculi Malayenses." Only part i. of this series has yet been published, and as no forecast is given of what is to be expected, one cannot say very much about the accounts of the social life of the jungle tribes, as subsequent parts may render the criticism void. It is safe to say that the physical anthropology is well done, and will prove of permanent value, to which the excellent illustrations of natives materially assist. The characteristic decoration, clothing, implements, habitations, and other details of the several tribes, which an intelligent traveller can readily observe, are carefully noted, and some curious engraved designs and patterns on dart cases, combs, and other objects are figured and partially described. There is an interesting chapter by Mr. Annandale on the beliefs and customs of the Patani fishermen. These Malays have various animal cults, but they certainly do not present any features of true clan totemism. This is followed by the first part of an essay on religion and magic among the Malays of the

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[1] "Bodeneis vom Fluss Beresowka (Nord-ost Sibiriens)," (*Verhandl. k. russ. min. Ges.*, vol. xl. pp. 415–452, pls. v–viii, 1903.)

[2] "Fasciculi Malayenses: Anthropology." Part i. (London: Longmans, Green and Co., 1903.) Price 15*s.* net.

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Patani States, in which souls and ghosts are dealt with; a consideration of ghosts and spirits unconnected with material bodies will be published in another part.

The work is admirably printed, and the illustrations are excellent. This first part reflects great credit on the University Press of Liverpool.

ELECTROCHEMISTRY IN AMERICA.

THE third meeting of the American Electrochemical Society took place in New York on April 18. Three meetings may seem rather a small number for a society which has been in existence for more than eighteen months, but the society, which has members from all parts of the United States, only meets once in six months, and the meetings assume the form of a congress, which lasts several days. This style of meeting, which might be compared to the annual meeting of the Society of Chemical Industry, in which members from all parts of the country meet together each year in a different town, partly for work and partly for social intercourse, has certain obvious advantages, in that country as well as town members are able to attend; there is, however, one disadvantage, and that is that papers are only published once in six months. The transactions of the society are also only published once in six months, hence they contain the concentration of six months' work.

The presidential address of Dr. Joseph W. Richards, an abridgment of which is printed below, contains several points of considerable interest. One thing which will strike British electrochemists is that although the Americans have made great progress in the industrial applications of electrochemistry, yet they have to admit that they owe their present position in a large measure to foreign trained electrochemists. Dr. Richards mourns that they are vastly behind the Germans in the number of their chairs and laboratories of electrochemistry. How much more, then, should we in this country mourn—*we have not a single chair devoted to the teaching of electrochemistry*, and there are only two or three laboratories in the whole kingdom.

It is often said that, having very little water power in this country, we can never expect to compete industrially with other countries in electrochemical processes. Dr. Richards remarks that although all countries have not Niagaras, they have gas-engines, and he points out some of the sources of gas supply. Finally his remarks upon the value of literature, *good, sound literature*, are worth consideration. Where is the British electrochemical literature to be found?

To live is to progress, and to progress is to live. A science which does not progress petrifies. The science of electrochemistry has progressed so magnificently in the last decade that a mere catalogue of its achievements would be a monumental compilation. Abler and better-informed pens than mine have given to us recently, in presidential addresses and in careful reviews, the detailed history of this progress. I do not intend to attempt that task anew this evening; my theme is an analysis of the *conditions which make for progress*, and which I hope to make clear in all their bearings on electrochemical science.

I place discovery of new facts in electrochemical science as the corner-stone of progress in our science. Given a freshly-flowing current of new electrochemical facts, and all the other elements of progress have a chance to exist. No less certain than this is the location of the birthplace and the identity of the sponsors of these newly-born facts. The birthplaces are chemical, electrical and physical laboratories; the sponsors are the investigators, the searchers after truth—the professors, students, employees, private investigators, and all who with the insatiable thirst for more knowledge are pushing back the thick curtain of the unknown which hems us in so closely on every side. The elect among these workers, the highly-favoured few, are the professors of electrochemistry provided with well-equipped electrochemical laboratories. They are in the position to do or to direct the most valuable investigations, and are also under the moral obligation to publish freely to the world all that they discover. The giants of the electrochemical fraternity are in this class: Davy, Faraday, Bunsen, Arrhenius, van 't Hoff, Ostwald, Nernst, Moissan. The labours of such workers, given to the world in their publications, form the *body* of electrochemical science, and their thoughts—its *soul*. Such are the heroes of science; men who work for the work's sake, who sacrifice time, money, and often health, to increase the boundaries of our knowledge, and then keep nothing back.

The German-speaking countries count up alone at their universities and technical schools fifteen chairs of electrochemistry and twelve electrochemical laboratories. These, we all know it, have been the source of the greater part of the advance of electrochemical science in the last ten years. The whole industrial electrochemical world is debtor to the European electrochemical laboratories and their workers, and how can that debt be requited? Surely not by selfishly using all the facts and holding fast all the material benefits. Not only common gratitude but also self-interest unite in recommending to the captains of electrochemical industry that more such laboratories be built and more such chairs endowed; money thus spent will be seed which will return many fold its value to the industry. America has boasted that it is "The Electrochemical Centre of the World." It may be so, in the development of electrochemical industries, in the amount of power used and material products turned out; but is it not a fair question to ask "Where are the professors of electrochemistry at our universities and how many electrochemical laboratories are at their command?" Are we not out of comparison with Germany in that respect—but I trust not hopelessly so? Our present flourishing condition industrially is largely due to our foreign-trained electrochemists and our imported literature. Shall we not, through shame at contributing so little ourselves to that literature, soon begin to establish chairs of electrochemistry and build well-equipped laboratories to go with them? Then our boast might begin to be more than the empty boast of a successful money-maker; then we may begin to be an *illuminating* centre radiating knowledge to the rest of the world.

In place of professors and professional laboratories, however, America is blessed with another class of investigators who are no less industrious in acquiring facts, and to whom a large part of our commercial success is directly ascribable; I refer to the small army of patient investigators in the laboratories of our industrial plants, who are searching over ground not yet explored and accumulating facts of value in their special industrial lines. The expense of such work is borne by the corporation for which they labour, and the work itself is in reality an investment made in the hope of yielding financial reward.

By means of facts, correlating, discussing and deducing therefrom, we arrive at a knowledge of the laws of science, the rules governing its various phenomena and according to which its manifestations invariably proceed. Such deductions are the goal of pure science; they contain no element of speculation, hypothesis or theory, and represent man's deepest insight into the phenomena of nature.

The indefatigable Faraday discovered our first fundamental laws. Ohm and Joule added to them, and numerous later investigators have contributed, but we must not make the mistake of thinking that there remains very little more in the nature of generalisations to be discovered; we could not make a greater mistake. If facts are being discovered, the recognition of unforeseen generalisations and the establishing of new laws are bound to follow, and thus the science reaches its highest consummation.

Such discoveries are usually the privileges and the perquisites of the experimenter and investigator, if so be that he is likewise a thinker. He gets the facts at first hand, and has the first chance to deduce new laws. The electro-

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